(12) **INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)**

(54) **Title: CONTENT WITH BOOKMARKS OBTAINED FROM AN AUDIENCE'S APPRECIATION**

(57) **Abstract:** A method provides bookmarks for indicating elements or portions of an information content that are likely to be of great interest to an audience. A broadcast station can these bookmarks for sale of lease to a third party for inserting data into the information content at the bookmarked locations. The third party can insert advertisements in the information content close to the indicated portions that the audience is likely to appreciate.

Content with bookmarks obtained from an audience's appreciation

The invention relates to a method of indicating particular portions in electronic information content. The invention is relevant to content broadcast stations which can offer these bookmarks for sale of lease to a third party for inserting data into the information content at the bookmarked locations.

5   The invention also relates to an apparatus for determining and retrieving the portions in the information content.

US patent 6,011,895, incorporated herein by reference, discloses a method of

10   retrieving programs, segments from a program, and/or segments from a plurality of programs. The method enables a user to establish content preferences by means of at least one keyword. Each segment is analyzed as to subject matter and is assigned a keyword. The keywords provide an effective means for retrieval of a desired segment and enable the user to control what is being played out. Keyword indexing of the segments provides the capability

15   of inhibiting the viewing of undesirable subject matter, or of assisting in the retrieval of desirable subject matter. The same patent document describes a system for generating a transparently seamless video program matching the viewers' pre-established content requirements.

          The known method classifies segments of programs or entire programs according to

20   their contents. The known method does not address the expected impact of a segment of a program on an audience. The inserted keywords describe the content of the segment in a neutral manner, i.e., without considering the relative degree of interest to a typical audience or without annotating highlights in the program. The inserted keywords do not give any indication whether or not the audience will like the segment when the segment is perceived

25   within the program. The keywords are used to deliver selected programs whose content satisfies the user's preferences. Such a method relates to the selection in advance of programs to be shown to the user.

It is an object of the invention to efficiently select portions of given information content that are likely to be of the most interest to an audience. Another object of the invention is to mark these portions in the information content that are likely to raise the highest interest or will attract the highest attention. Another object is to create income from marking these portions.

To this end, the invention provides a method of enabling to use a bookmark that indicates an element in information content, the element being selected on the basis of an appreciation, expected or tested, from an audience perceiving the information content.

The expression "information content" as used herein indicates what a user perceives when the information content is developed, played out over time.. An aspect of the invention aims at determining and referencing elements or portions of the information content that the audience is likely to appreciate. An element can be a portion of the information content perceived by the audience during a certain length of time. The portion can have a length of a few seconds, a few minutes or can be the information content occurring at a particular instant, e.g., a snap shot or a frame. For example, in a movie an element can be a scene of the movie, a sound or an object that appears in an image. The word "appreciation", as used herein, means a favorable critic estimate. The term "bookmark" as used herein refers to an identifier indicating a specific element in the information content. Thus, a bookmark is a means to label in the information content an element that the audience likes or is expected to appreciate. An advantage of the invention is to permit to determine in advance portions of the information content that are likely to be judged positively by the audience. The audience can be composed of members that are arbitrarily chosen. Alternatively, the targeted audience is a group of specific spectators chosen on the basis of, e.g., demographic or geographic criteria. Compared to the known method in the background art section, a program is delivered in its entirety to the audience. The invention does not consider whether a specific program is in accordance with the audience requirements and does not aim at selecting parts of the segments that should or should not be delivered to the audience. An object of the invention is to adopt a positive approach towards a program or other information content as a whole. The method of the invention comprises selecting and marking only the portions of the information content that are likely to be preferred.

The invention also provides a method of offering for sale or lease a right of inserting data into the information content on the basis of an appreciation of an audience perceiving the content. Such right may be sold to a service provider. Thus, the service provider can insert data such as advertisement into the information content. The service provider inserts

advertisements into the element or in the vicinity of the element of the information content that the audience is expected to appreciate. Thus, the advertisements have a greater chance to be perceived by the audience since they are inserted in the information content where the attention level of the audience is likely to be high.

5   The invention is explained in further detail, by way of example, and with reference to the accompanying drawing wherein:

          Fig. 1 is a diagram explaining the appreciation from the audience perceiving the
10   information content;

          Fig. 2 shows an audience perceiving content and an apparatus of the invention; and

          Fig. 3 is a diagram explaining the appreciation from two different audiences perceiving the same information content.

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          Fig. 1 is a diagram relating to an audience, which perceives information content originating from a signal S1. In the following the expression "content" refers to "information content". The content is, e.g., a video program or an audio program that can be watched or heard on a television, a radio or via the Internet on a computer, for example. The signal S1 is
20   the linear physical representation of the content C1 in the time domain. The signal S1 is typically a physical quantity varying with time.

          A bookmark Bi indicates an element of the content. This element is determined from the appreciation from the audience perceiving the content. The term "appreciation" as used herein includes the concept of a favorable critic estimate given by the audience. The
25   bookmark Bi is either inserted in the signal S1 or is provided separately from the signal S1 as will be explained further below. When the bookmark Bi is inserted into the signal S1, the bookmark Bi allows to identify an element in the content S1 and can be identified and recognized as a bookmark within the signal S1.

          The audience can be arbitrarily chosen and can comprise several auditors or a single
30   auditor. Alternatively, the information content may be intended for a specific targeted audience. Therefore, in a first place, a test audience is selected, representative of the specific audience to which the content is actually targeted. The content is played to this test audience to determine the test audience's appreciation and to determine the elements appreciated by

the test audience that are likely to be appreciated by the specific audience. Thereafter, the content can be played to the specific audience to which the content C1 is targeted.

A diagram 100 in Fig. 1 gives the evolution of a measure of the audience's appreciation along the evolution of the content over time. The diagram 100 gives on the vertical axis a measure of the appreciation in an arbitrary unit. The appreciation can be measured by the attention level of the audience, which can be the number of people showing interest in the content, e.g., by applauding, laughing, etc... The appreciation can also be measured by the intensity of the noise made by the audience. This number or intensity varies along the content. The appreciation of an element of the content by the audience is measured in comparison with other elements of the same content. Indeed, the varying appreciation indicates which portions are relatively interesting.

The diagram 100 gives on the horizontal axis the reference X indicating locations of elements along the content. Any element in the content is identified by its location Xi in the content or correspondingly in the signal S1. Since the signal S1 is at the origin of the content, there is a mutual correspondence between locations in the signal S1 and locations in the content. An element in the content is for example referenced by the play time passed between the start of playing out the content and the occurrence of the element. Then, in this example, the reference Xi of an element in the content is the moment in time at which the element is perceived by the audience. In another embodiment, the signal S1, and as a consequence the content, is segmented into successive segments and a single measure of the measured appreciation is attributed to an entire segment. The measure of the appreciation attributed to a given segment is, for example, an average of the appreciation of the audience measured over the entire segment. For example, a video program is divided into scenes and the appreciation by the audience is graded from 1 to 5. A scene that is graded 5 is among the most appealing scenes. A scene graded 1 is a scene that the audience relatively dislikes, i.e. in comparison with other scenes of the program.

The diagram 100 shows three peaks occurring at locations X1, X2 and X3 that indicate those elements in the content that the audience prefers. An element could be an image, a scene, an action in a video or video/audio content or can be a tone, a sequence of tones in an audio content, a movement in a symphony or a part of a song's lyrics, etc.... Bookmarks B1, B2 and B3 are inserted into the signal S1 at the locations X1, X2, X3 representative of the peaks of the appreciation. One may choose to insert the bookmarks B1, B2, B3 at the exact locations X1, X2, X3 of the peaks or one may choose to insert the bookmarks B1, B2, B3 an arbitrary length after or before the occurrence of the peaks of

interest. Alternatively, bookmarks Bi can also be inserted at locations in the signal S1 for which the appreciation goes above a predefined threshold.

Fig. 2 shows an apparatus 200 of the invention. An audience 210 perceives content C. The audio and video playing apparatus 200 allows rendering the content C from a signal S. The apparatus 200 of the invention can have different functionalities.

A first possible functionality of the apparatus 200 is to allow playing out of the content C. To this end, the apparatus 200 comprises a play unit 201 that allows rendering the content C from the signal S to the audience 210. For example, the apparatus 200 comprises a computer, a radio or a home theater and the unit 201 comprises a VCR, a CD player, etc... The signal S is stored on a video tape, a hard-disk drive or any other storage medium.

A second possible functionality of the apparatus 200 is to allow the recording of the signal S. The apparatus 200 comprises a recording unit 202 for recording the signal S on an appropriate storage medium. The apparatus 200 comprises, for example, a Video Cassette Recorder (VCR), a CD recorder, a video camera or any other data recorder. The signal S may be received from an external sender such as a broadcaster or it may downloaded via a data network, e.g., the Internet. The apparatus 200 can also comprise a video/audio camera or an audio recorder for recording the signal S obtained from a live information content or a live event. Such a live information content is symbolized by the house 230.

The apparatus 200 further comprises a marker 203 for inserting the bookmarks Bi in the signal S. There are different manners of inserting the bookmarks Bi in the signal S as explained hereinafter.

A first manner is to insert a bookmark Bi in the signal S in response to a command of the audience 210 perceiving the content C.

The audience 210 can be an end-user at home watching a program or content C on the television, the content C being obtained from a broadcaster. The user 210 records the signal S on a storage medium by means of the apparatus 200. The bookmarks Bi may be inserted while the signal S is actually being recorded. In another example, the signal S is not broadcast but obtained from the live event 203 of Fig. 2 and in this case the apparatus 200 comprises a video camera.

Alternatively, the signal S is prerecorded, played and the bookmarks Bi are inserted in the prerecorded signal S. The apparatus 200 allows to render the content C to the user 210 from the recorded signal S. When perceiving the content C, the user 210 sends a command to the apparatus 200 whenever he/she is particularly interested in an element of the content C. The command is possibly sent when the user 210 presses a button on a remote control. In

response to this command, the marker 203 inserts the bookmark Bi into the signal S. The bookmark Bi is possibly inserted at the location corresponding to the element that is currently being played or is possibly inserted at a location determined by a predefined protocol. When, for example, the content C and the signal S are divided into segments, such a protocol can

5   require that the bookmark Bi be inserted at the beginning of the segment whose content is currently played.

A second manner is to insert automatically a bookmark Bi into the signal S on the basis of known statistics of the audience's appreciation. Indeed, it may be known in advance from previous experiences with other content semantically close to that of the content C that

10   certain elements of the content C have a greater chance than others to be appreciated by the audience 210. The bookmarks Bi are inserted into the signal S at the locations Xi indicating these elements. When considering content C being a football match, for example, a bookmark Bi is automatically inserted into the signal S at the location Xi indicating a goal being scored or a replay of the goal. Indeed, in this example of a football match, goals are known, from

15   past experiences, to be the elements for which the attention level of the audience 210 is likely to be high.

A third manner to insert a bookmark Bi is based on the measured appreciation of a test audience. A content C may be destined to be broadcast to a targeted audience 210, whose demographic characteristics are known. A broadcaster may decide to insert the bookmarks Bi

20   before broadcasting the content C to the targeted audience 210. To this end, the broadcaster arbitrarily selects a test audience that is representative of the targeted audience 210. The content C is rendered to this test audience and the bookmarks Bi are inserted into the signal S on the basis of the appreciation from the test audience. For example, a television show may be played live to a selected test audience and simultaneously the signal S is recorded. The test

25   audience's appreciation is measured as the signal S is recorded so that the bookmarks Bi can be inserted into the signal S while recording.

The bookmarks Bi can have several uses as shown hereinafter.

Advantageously, the broadcaster offers for sale the locations Xi of the bookmarks Bi in the signal S to a service provider. Such locations Xi indicate the most valuable possible

30   portions of the content C for inserting advertisements since these portions are likely to be seen by a large number of auditors. The bookmarks Bi in the signal S are used to control the insertion of advertisement data ADi into the signal S. The obtained signal comprising the embedded data ADi leads to a content that comprises advertisements corresponding to the data ADi. For example, when the content C is a video content, an advertisement may appear

as a visual element or logo inserted in the displayed image identifying the provider's service or goods. An advertisement may also be a short video clip inserted in the content C at the bookmark location. The content C is then interrupted for the duration of the video clip. The advertisements are inserted in the content C before the content is broadcast.

5   The broadcaster adjusts the price of a given location X_i indicating an element in the content C on the basis of the relative value of the measured appreciation for this element. The higher the measured value of the appreciation is, the higher the price can be.

The user 210 may also use the bookmarks B_i for scanning the content C. Once the bookmarks B_i are inserted in the recorded signal S, the bookmarks B_i are possibly used to

10   retrieve elements in the content C. Advantageously, the signal S is digital and the play unit 201 allows a functionality of jumping from one bookmark B_i to another when scanning the content C. This functionality permits the user 210 to play only the elements in the content C that he prefers. By pressing a key on a remote control the user can navigate through the digital signal S in either direction from one bookmark to another. The play unit 201 allows to

15   go to from one bookmark to another that are not necessarily consecutive.

In another embodiment not shown here, the bookmarks B_i may not necessarily be embedded in the signal S. A separate signal comprising the bookmarks B_i for indicating the locations X_i in the signal S can also be supplied. The separate signal may be processed so that the user retrieves from the signal S, into which no bookmarks are inserted, elements in

20   the content C. In this embodiment, the apparatus 200 allows to combine the signal S and the separate signal comprising the bookmarks B_i that indicate the locations X_i. From this combination of the signal S and the separate signal, the apparatus 200 allows a user to access the elements in the content C indicated by the provided bookmarks B_i. The separate signal comprising the bookmarks B_i is for example provided through the Internet.

25   Fig. 3 illustrates another embodiment of a method of the invention. The content C is submitted to a first audience 301 and a second audience 302, different from the audience 301. The auditors may vary from the audience 301 to the audience 301 according to their age, tastes or whether they are female or male. A first diagram 311 is obtained showing the evolution of a measure of the appreciation by the audience 301 along content C when played

30   out over time. A second diagram 312 is obtained showing the evolution of a measure of the appreciation from the audience 302 along the content C when played out over time. For both diagrams 311 and 312, the appreciation is given in an arbitrary unit. Considering the diagram 311, three peaks of the appreciation from the audience 301 are detected at locations $X11$, $X21$ and $X31$ in the signal S. A set 321 of bookmarks B11, B12 and B13 are inserted into the

signal S at the locations X11, X21 and X31, respectively, as shown in Fig. 3. On the other

hand, when considering the diagram 312, three peaks of the appreciation of the audience 302

are detected along the content C. These peaks are located at locations X12, X22 and X32 in

the content C or correspondingly in the signal S. A set 322 of bookmarks B21, B22 and B23

5   are inserted into the signal S at the locations X12, X22 and X32, respectively, as shown in

Fig. 3.

        The use of set 321 or set 322 may be determined by the type of audience that is

targeted by a display of the content C. Thus, the set 322 is used when the content C is played

to an audience that has great similarities with the audience 302. For example, the audience

10   302 may be composed of female auditors only. The audience 301 is mixed. A broadcaster,

who desires to play the content C, which is a TV program, at a time when mostly female are

watching TV, uses the bookmarks B21, B22 and B23 to insert advertisements data AD21,

AD22 and AD23 in the signal S.

        Furthermore the bookmarks B23 and B13 are located at the same location X32 in the

15   signal S. It is clear that the advertisement originated from the data AD23 inserted at this

location X32 has a better chance of being viewed by a more auditors than an advertisement

inserted at any another location in the content C.

        It is also within the scope of the invention to provide a signal S in which various sets

of bookmarks have been inserted according to the appreciation of one or several audiences.

20   For example, in a soccer match content C, a first set of bookmarks is inserted into the signal

S for indicating the parts of the game when there is a scoring chance of one of the teams. A

second different set of bookmarks is also inserted in the signal S for indicating the replays of

the goals in the content C. A broadcaster supplies the signal S in which the two sets of

bookmarks are embedded. A user, having previously recorded the signal S with the two sets

25   of bookmarks provided by the broadcaster, has the possibility to choose to watch only the

elements of the game indicated by the bookmarks of one of the two sets. Thus, the user can

choose to use the first set of bookmarks and watches only the parts of the game when there

was a scoring chance of one of the two teams. Or, the user can choose to use the second set of

bookmarks and watches only the parts of the game where there is a replay of a goal. A

30   broadcaster may choose to offer to sell the locations of the bookmarks of one set to a first

advertisement provider and to offer to sell the locations of the bookmarks of the second set to

another provider.

        It is to be noted that, with respect to the described method, modifications or

improvements may be proposed without departing from the scope of the invention. For

instance, it is clear that a method of the invention may be implemented in several manners, such as by means of wired electronic circuits or, alternatively, by means of a set of instructions stored in a computer-readable medium, said instructions replacing at least a part of said circuits and being executable under the control of a computer or a digital processor in

5   order to carry out the same functions as fulfilled in said replaced circuits.

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CLAIMS:

1.   Method of using a bookmark (Bi) indicating an element in an information content (C), the element being determined from an appreciation from an audience (210) perceiving the information content.

5   2.   Method of Claim 1, wherein the information content (C) is displayed.

3.   Method of Claim 1, wherein the element is determined from known statistics of the audience's appreciation.

10   4.   Method of Claim 1, comprising:
   • supplying a first signal carrying the information content;
   • supplying a second signal comprising the bookmark.

5.   Method of Claim 1, wherein the using comprises inserting advertisement (ADi) into
15   the information content (C) in the vicinity of the element.

6.   Method of Claim 1, wherein the using comprises inserting data into the information content in the vicinity of the element.

20   7.   Method of Claim 6, wherein the information content comprises successive images and the data is a visual element inserted in an image.

8.   Method of Claim 6, wherein the information content is an audio and video program and the data is a video clip.

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9.   Method of Claim 6, wherein a broadcaster inserts the data before broadcasting the information content.

10.   Method of Claim 1, wherein the bookmark is inserted in a signal (S) carrying the information content.

11.   Method of Claim 10, wherein a broadcaster inserts the bookmark (Bi) before
5   broadcasting the signal (S).

12.   Method of Claim 10, wherein the bookmark is inserted in a prerecorded signal.

13.   Method of Claim 10, wherein the bookmark is inserted while recording the signal.
10

14.   Apparatus for enabling to use at least one bookmark indicating an element in an information content, the element being determined from an appreciation from an audience perceiving the information content.
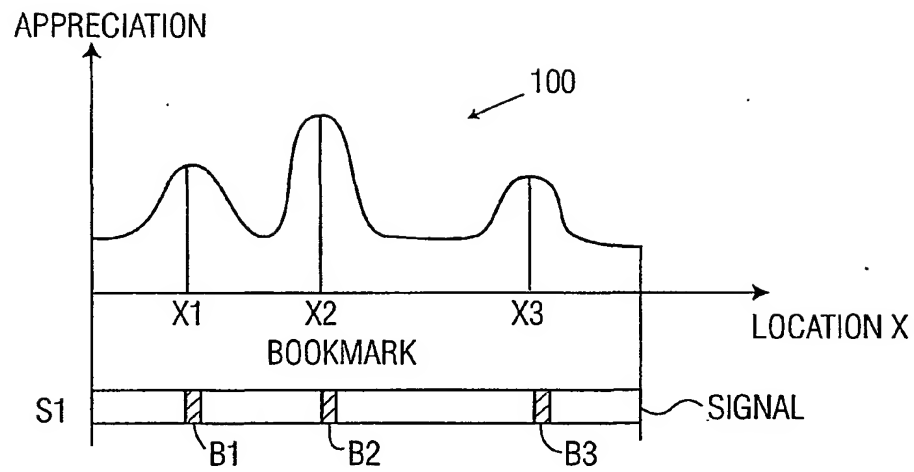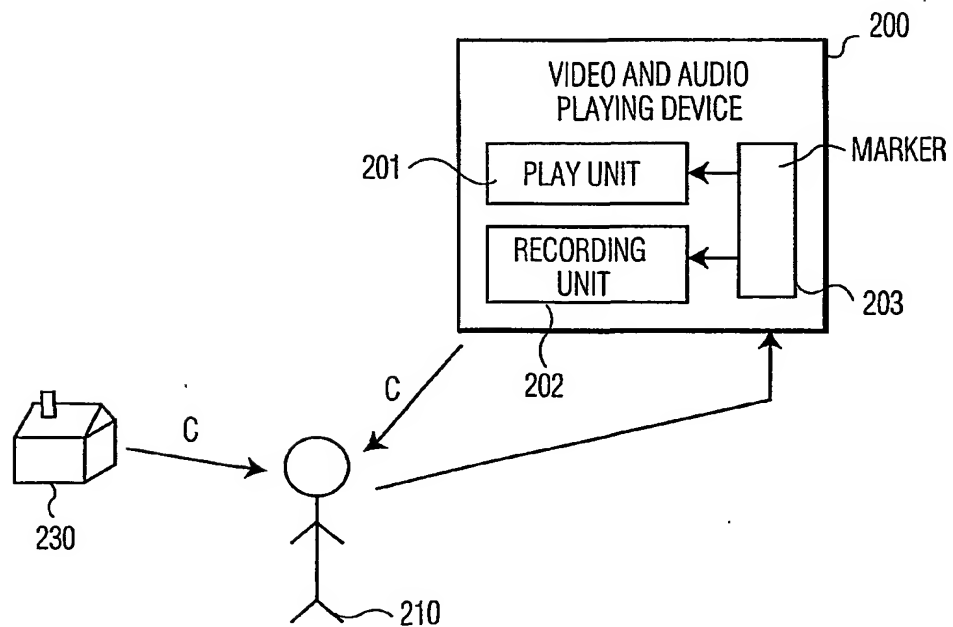
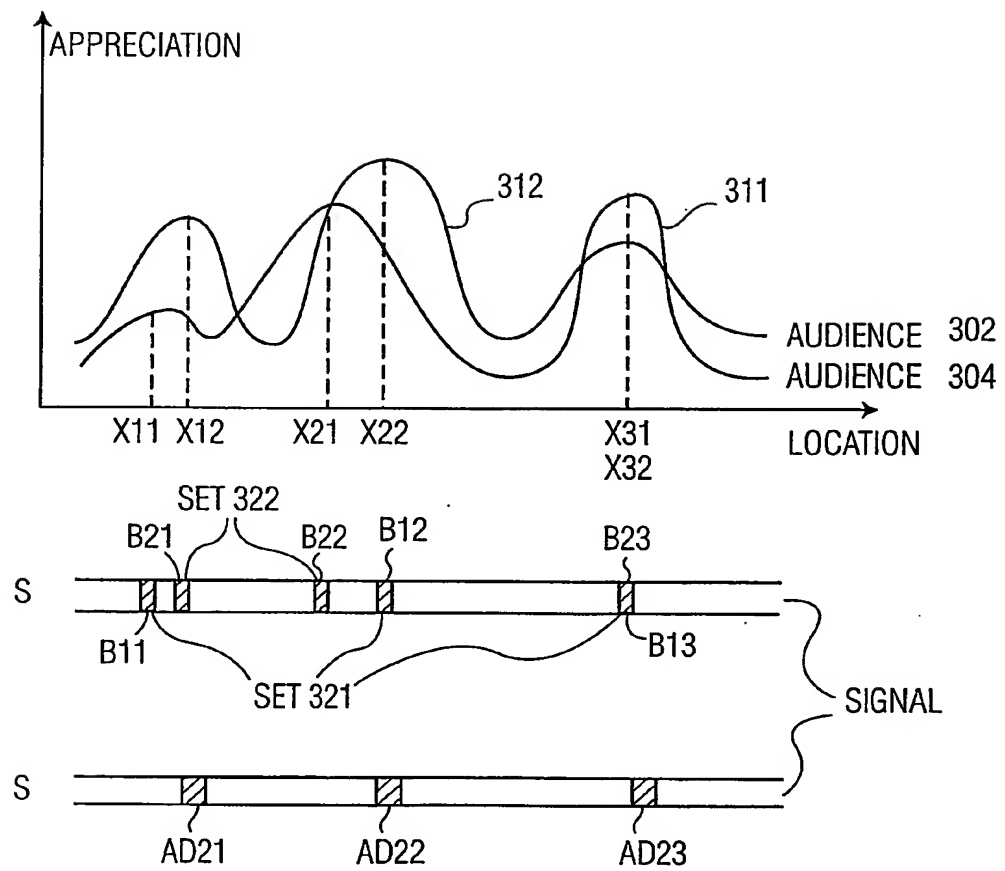15   15.   Apparatus of Claim 14, comprising:
  • recording means for recording a signal for allowing to play out the information content, and;
  • a marker for inserting the bookmark in the signal during the recording of the signal.

20   16.   Apparatus of Claim 14, comprising:
  • a player for playing out the information content from a signal,
  • a marker for inserting the bookmark in the signal during the play-out of the content.

17.   Storage medium for storing a digital signal into which a bookmark is inserted for
25   indicating an element of an information content, the content being carried by the signal and the element being determined from an appreciation from an audience perceiving the information content.

18.   Bookmarked signal carrying an information content, the signal comprising a
30   bookmark for indication an element of the information content, the element being determined from an appreciation from an audience perceiving the information content.

APPRECIATION

100

X1   X2   X3   LOCATION X

BOOKMARK

S1   SIGNAL

B1   B2   B3

FIG. 1

200

VIDEO AND AUDIO
PLAYING DEVICE

201 — PLAY UNIT   MARKER

RECORDING
UNIT   203

C

202

230   C

210

FIG. 2

FIG. 3